IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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Inventor	Curt A. Steeb et al.
Group Art Unit	2193
Examiner	Wood, William H.
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Confirmation No.	3691

Title: Managing Multiple Devices on which Operating Systems can be Automatically Deployed

APPEAL BRIEF

To: Commissioner for Patents
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Pursuant to 37 C.F.R. §41.37, Applicant hereby submits an appeal brief for application 10/607,115, filed June 25, 2003, within the requisite time from the date of filing the Notice of Appeal. Accordingly, Applicant appeals to the Board of Patent Appeals and Interferences seeking review of the Examiner's rejections.

(1) Real Party in Interest

The real party in interest is Microsoft Corporation, the assignee of all right, title and interest in and to the subject invention.

(2) Related Appeals and Interferences

Appellant is not aware of any other appeals, interferences, or judicial proceedings which will directly affect, be directly affected by, or otherwise have a bearing on the Board's decision to this pending appeal.

(3) Status of Claims

Claims 1, 3-17, 19-31, 33-40 stand rejected and are pending in this Application. Claims 1, 3-17, 19-31, 33-40 are appealed. Some of claims 1, 3-17, 19-31, 33-40 were previously amended. Claims 2, 18, and 32 were previously canceled. Claims 1, 3-17, 19-31, 33-40 are set forth in the Appendix of Appealed Claims on page 39.

(4) Status of Amendments

A Final Office Action was issued on June 16, 2005.

A Response to the Final Office Action was filed August 16, 2005. No amendments were made as part of this Response.

An Advisory Action was issued on November 1, 2005, indicating that the request for reconsideration had been considered but did not place the application in condition for allowance.

Appellant filed a Notice of Appeal on December 15, 2005 in response to the Advisory Action and the Final Office Action.

(5) Summary of Claimed Subject Matter

A concise explanation of each of the independent claims is included in this Summary section, including specific reference characters. These specific reference characters are examples of particular elements of the drawings for certain embodiments of the claimed invention, and the claims are not limited to solely the elements corresponding to these reference characters.

With respect to independent claim 1, as discussed for example at page 5, line 18 – page 23, line 25, an apparatus (120) manages installation of operating systems on a plurality of computing devices (102). The installation is performed across the plurality of computing devices (102) both concurrently and asynchronously, and the installation comprises transferring multiple portions of data to each of the plurality of computing devices (102). Some of the multiple portions are transferred to the plurality of computing devices (102) concurrently and other of the multiple portions are transferred to the plurality of computing devices (102) asynchronously. The portions that are transferred to the plurality of computing devices (102) asynchronously include one or more programs to be executed on the plurality of computing devices (102) to configure the plurality of computing devices (102).

With respect to independent claim 10, as discussed for example at page 5, line 18 – page 23, line 25, an operating system is deployed on a plurality of computing devices (102). As part of the deploying, a first portion of an installation process is performed (154; 302-362) on each of the plurality of computing devices (102) asynchronously across the plurality of computing devices (102). Performing the first portion (154; 302-362) comprises downloading one or more programs to each of the plurality of computing devices to be executed on the plurality of computing devices (102) to configure the plurality of computing devices (102). Also as part of the deploying, a second portion of the installation process is performed (156; 364) on each of the plurality of computing devices (102) concurrently.

With respect to independent claim 14, as discussed for example at page 5, line 18 – page 23, line 25, an indication is received, from each of a plurality of computing devices (102), that the computing device (102) is to have an operating system installed on the computing device (102). For each of the plurality of computing devices (102), in response to receiving the indication, a set of steps to be taken in order to install an operating system on the computing device (102) is identified. Installation of the operating systems on the plurality of computing devices (102) is controlled asynchronously and in parallel. The installation comprises transferring (154, 156) multiple portions of data to each of the plurality of computing devices (102). Some of the multiple portions are transferred to the plurality of computing devices (102) in parallel (156; 364) and other of the multiple portions are transferred to the plurality of computing devices (102) asynchronously (154; 302-362). The portions that are transferred to the plurality of computing devices (102) asynchronously include one or more programs to be executed on the plurality of computing devices (102) to configure the plurality of computing devices (102).

With respect to independent claim 27, as discussed for example at page 5, line 18 – page 23, line 25, a process is identified, for each of a plurality of devices (102), to be followed to install an operating system on the device (102). Installation of the operating systems on the plurality of devices (102) is controlled in parallel and asynchronously. The installation comprises transferring (154, 156) multiple portions of data to each of the plurality of devices (102). Some of the multiple portions are transferred to the plurality of devices (102) in parallel (156, 364) and other of the multiple portions are transferred to the plurality of devices (102) asynchronously (154; 302-362). The portions that are transferred to the plurality of computing devices (102) asynchronously include one or more programs to be executed on the plurality of computing devices (102) to configure the plurality of computing devices (102).

With respect to independent claim 37, as discussed for example at page 4, line 2 – page 23, line 25, and p. 112, line 3 – page 117, line 20, a system (120) for deploying an operating system on a plurality of computing devices (102) comprises means for performing a first portion of an installation process on each of the plurality of computing devices (102) asynchronously (specification: p. 8, lines 5-23, and p. 12, line 12 – p. 19, line 15; drawings: 154; 302-362) across the plurality of computing devices (102). The means for performing the first portion comprises means for downloading (specification: p. 12, lines 12-20, p. 11, lines 19-25, p. 14, line 17 – p. 17, line 11; drawings: 222, 308, 330, 336, 340) one or more programs to each of the plurality of computing devices (102) to be executed on the plurality of computing devices (102) to configure the plurality of computing devices (102). The system also includes means for performing a second portion of the installation process on each of the plurality of computing devices (102) concurrently (specification: p. 12, lines 12-20, p. 9, lines 4-10, and p. 19, line 16 – p. 20, line 17; drawings: 156; 364).

(6) Grounds of Rejection to be Reviewed on Appeal

Claims 1-7, 10-11, 14-16, 19-22, 27-30, and 33-38 stand rejected under 35 U.S.C. §102(a) as being unpatentable over U.S. Patent Application Publication No. 2002/0198972 to Babbitt et al.

Claims 8 and 23 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Application Publication No. 2002/0198972 to Babbitt et al. in view of WIPO Publication Number WO 01/16701 to GLAXO Group Limited.

Claims 9, 13, and 26 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Application Publication No. 2002/0198972 to Babbitt et al. in view of U.S. Patent No. 6,687,902 to Curtis et al.

Claims 12, 24, and 25 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Application Publication No. 2002/0198972 to Babbitt et al. in view of WIPO Publication Number WO 01/16701 to GLAXO Group Limited and further in view of U.S. Patent No. 6,236,983 to Hofmann et al.

Claims 17 and 31 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Application Publication No. 2002/0198972 to Babbitt et al. in view of U.S. Patent No. 6,763,456 to Agnihotri et al.

Claims 39 and 40 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Application Publication No. 2002/0198972 to

Babbitt et al. in view of U.S. Patent Application Publication No. 2002/0161868 to Paul.

(7) Argument

A. Rejection under 35 U.S.C. §102(a) over U.S. Patent Application Publication No. 2002/0198972 to Babbitt et al.

Claims 1-7, 10-11, 14-16, 19-22, 27-30, and 33-38 stand rejected under 35 U.S.C. §102(a) as being unpatentable over U.S. Patent Application Publication No. 2002/0198972 to Babbitt et al. (hereinafter "Babbitt").

Babbitt is directed to a pre-boot multicast address management protocol for a computer network (see, title and page 1, paragraph 2). Babbitt discusses that the client begins the process of booting by first obtaining the necessary operating system files from a file server process on an intranet, a process that is called pre-boot (see, page 1, paragraph 5). The pre-boot process begins when the client computer is switched on and firmware on the client begins negotiating with an addressing server process to obtain a network address for the client on the intranet (see, page 1, paragraph 6). Once the client has obtained a network address, the pre-boot process continues with the client making a request to a boot negotiation server process for a multicast address (see, page 1, paragraph 7). The multicast address is the location on the intranet where the client can obtain boot information needed to boot the client with the desired operating system (see, page 1, paragraph 8). The client goes to the multicast address and listens for a period of time, waiting for a file server process to begin multicasting the desired boot information (see, page 1, paragraph 10).

1. Claims 1-7

With respect to claim 1, claim 1 recites:

> An apparatus configured to manage installation of operating systems on a plurality of computing devices, wherein the installation is performed across the plurality of computing devices both concurrently and asynchronously, wherein the installation comprises transferring multiple portions of data to each of the plurality of computing devices, and wherein some of the multiple portions are transferred to the plurality of computing devices concurrently and other of the multiple portions are transferred to the plurality of computing devices asynchronously, and wherein the portions that are transferred to the plurality of computing devices asynchronously include one or more programs to be executed on the plurality of computing devices to configure the plurality of computing devices.

Appellant respectfully submits that the pre-boot process of Babbitt does not disclose the apparatus of claim 1.

In the June 16, 2005 Office Action at ¶ 3, pp. 2-3, it was asserted that:

> Babbitt disclosed an apparatus . . . wherein the portions that are transferred to the plurality of computing devices asynchronously include one or more programs to be executed on the plurality of computing devices to configure the plurality of computing devices *(page 1, paragraphs 5-10, messages and commands to receive addresses to configure client).*

It was further asserted at ¶ 10, p. 18 that:

> First, the messages and commands concerning addresses sent to the plurality of devices in Babbitt constitute a program under the broadest reasonable interpretation (supported by Applicant's specification page 8, lines 16-20). A program is simply instructions for configuring.

Thus, the messages and commands to receive addresses to configure client discussed at page 1, paragraphs 5-10 of Babbitt are being relied on as disclosing the one or more programs to be executed on the plurality of computing devices to configure the plurality of computing as recited in claim 1.

The cited portions of Babbitt discuss a pre-boot process that begins when the client computer connected to the intranet is switched on (see, p. 1, paragraph 6). Firmware on the client begins negotiating with an address server process to obtain a network address for the client (see, p. 1, paragraph 6). Once the client has obtained a network address (such as an IP address), the pre-boot process continues with the client making a request to a boot negotiation server process for a multicast address (see, p. 1, paragraph 7). The request contains the IP address of the client and the type of operating system that the client wants to use (see, p. 1, paragraph 7). The boot negotiation server process determines at which multicast address the boot information for the desired operating system is being multicast (see, p. 1, paragraph 7). This multicast address is then transmitted to the client (see, p. 1, paragraph 7). Once the multicast address corresponding to the boot information desired by the client has been obtained, the client then goes to the multicast address and listens for the boot information (see, p. 1, paragraph 7).

Appellant respectfully submits that nowhere in the cited portions of Babbitt, or elsewhere in Babbitt, is there any discussion or mention that portions that are transferred to the plurality of computing devices asynchronously include one or more programs to be executed on the plurality of computing devices to configure the plurality of computing devices as recited in claim 1. The cited portions of Babbitt discuss that the client receives an IP address that gives the client a location on the intranet and tells others on the intranet where to find the client (see, p. 1, paragraph 6). The cited portions of Babbitt also discuss that the client receives a multicast address where the client listens for boot information (see, p. 1, paragraph 7). A multicast address is a specialized form of an IP address (see, p. 1, paragraph 8). Appellant respectfully submits that an IP address is not one or more programs to be executed on a plurality of computing devices to configure the plurality of computing devices. An IP address is simply that – an address. An IP address is not itself a program that can be executed on a plurality of computing devices to configure the plurality of computing devices.

In the November 1, 2005 Advisory Action at p. 2, it was asserted that:

> First, page 1, paragraphs 5-10 clearly indicate multiple (though one is enough) messages being sent asynchronously. The content may be related to addressing, however under the broadest reasonable interpretation the messages must be decoded (thus executed) and are therefore programs.

Appellant respectfully disagrees and asserts that, as discussed above, Babbitt is simply discussing that the client receives an IP address. An IP address, however, is not a program that can be executed on a plurality of computing devices to configure the plurality of computing devices. As such, Appellant respectfully submits that Babbitt does not disclose that the portions that are transferred to the plurality of computing devices asynchronously include one or more programs to be executed on the plurality of computing devices to configure the plurality of computing devices as recited in claim 1.

In addition, in the cited portion of Babbitt the only thing that is sent to the clients asynchronously is the IP addresses. There are no other messages discussed in the cited portion of Babbitt that are sent to the clients asynchronously, much less any messages that are one or more programs to be executed on a plurality of computing devices to configure the plurality of computing devices as recited in claim 1.

Accordingly, Appellant respectfully submits that Babbitt does not disclose that the portions that are transferred to the plurality of computing devices asynchronously include one or more programs to be executed on the plurality of computing devices to configure the plurality of computing devices as recited in claim 1.

With respect to claims 3-7, given that claims 3-7 depend from claim 1, Appellant respectfully submits that claims 3-7 are likewise allowable over Babbitt for at least the reasons discussed above with respect to claim 1.

2. Claims 10-11

With respect to claim 10, claim 10 recites:

> A method of deploying an operating system on a plurality of computing devices, the method comprising:
>
> performing a first portion of an installation process on each of the plurality of computing devices asynchronously across the plurality of computing devices, wherein performing the first portion comprises downloading one or more programs to each of the plurality of computing devices to be executed on the plurality of computing devices to configure the plurality of computing devices; and
>
> performing a second portion of the installation process on each of the plurality of computing devices concurrently.

Appellant respectfully submits that the pre-boot process of Babbitt does not disclose the method of claim 10.

Similar to the discussion above regarding claim 1, Appellant respectfully submits that nowhere in the cited portions of Babbitt, or elsewhere in Babbitt, is there any discussion or mention of performing a first portion of an installation process on each of the plurality of computing devices asynchronously across the plurality of computing devices, wherein performing the first portion comprises downloading one or more programs to each of the plurality of computing devices to be executed on the plurality of computing devices to configure the plurality of computing devices as recited in claim 10. The cited portions of Babbitt discuss that the client receives an IP address that gives the client a location on the intranet and tells others on the intranet where to find the client (see, p. 1, paragraph 6). The cited portions of Babbitt also discuss that the client receives a multicast address where the client listens for boot information (see, p. 1, paragraph 7). A multicast address is a specialized form of an IP address (see, p. 1, paragraph 8). An IP address is simply that – an address. An IP address is not itself one or more programs to be executed on the plurality of computing devices to configure the plurality of computing devices.

In addition, in the cited portion of Babbitt the only thing that is sent to the clients asynchronously is the IP addresses. There are no other messages discussed in the cited portion of Babbitt that are sent to the clients asynchronously, much less any downloading of one or more programs to be executed on the plurality of computing devices to configure the plurality of computing devices as recited in claim 10.

Accordingly, Appellant respectfully submits that Babbitt does not disclose performing a first portion of an installation process on each of the plurality of computing devices asynchronously across the plurality of computing devices, wherein performing the first portion comprises downloading one or more programs to each of the plurality of computing devices to be executed on the plurality of computing devices to configure the plurality of computing devices as recited in claim 10.

With respect to claim 11, given that claim 11 depends from claim 10, Appellant respectfully submits that claim 11 is likewise allowable over Babbitt for at least the reasons discussed above with respect to claim 10.

3. Claims 14-16 and 19-22

With respect to claim 14, claim 14 recites:

> One or more computer readable media having stored thereon a plurality of instructions that, when executed by one or more processors, causes the one or more processors to:
>
> receive, from each of a plurality of computing devices, an indication that the computing device is to have an operating system installed on the computing device;
>
> for each of the plurality of computing devices, identify, in response to receiving the indication, a set of steps to be taken in order to install an operating system on the computing device; and
>
> control installation of the operating systems on the plurality of computing devices asynchronously and in parallel, wherein the installation comprises transferring multiple portions of data to each of the plurality of computing devices, and wherein some of the multiple portions are transferred to the plurality of computing devices in parallel and other of the multiple portions are transferred to the plurality of computing devices asynchronously, and wherein the portions that are transferred to the plurality of computing devices asynchronously include one or more programs to be executed on the plurality of computing devices to configure the plurality of computing devices.

Appellant respectfully submits that the pre-boot process of Babbitt does not disclose the one or more computer readable media of claim 14.

Similar to the discussion above regarding claim 1, Appellant respectfully submits that nowhere in the cited portions of Babbitt, or elsewhere in Babbitt, is there any discussion or mention that the portions of data that are transferred to the plurality of computing devices asynchronously include one or more programs to be executed on the plurality of computing devices to configure the plurality of computing devices as recited in claim 14. The cited portions of Babbitt discuss that the client receives an IP address that gives the client a location on the intranet and tells others on the intranet where to find the client (see, p. 1, paragraph 6). The cited portions of Babbitt also discuss that the client receives a multicast address where the client listens for boot information (see, p. 1, paragraph 7). A multicast address is a specialized form of an IP address (see, p. 1, paragraph 8). An IP address is simply that – an address. An IP address is not itself one or more programs to be executed on the plurality of computing devices to configure the plurality of computing devices.

In addition, in the cited portion of Babbitt the only thing that is sent to the clients asynchronously is the IP addresses. There are no other messages discussed in the cited portion of Babbitt that are sent to the clients asynchronously, much less any messages that are one or more programs to be executed on the plurality of computing devices to configure the plurality of computing devices as recited in claim 14.

Accordingly, Appellant respectfully submits that Babbitt does not disclose to control installation of the operating systems on the plurality of computing devices asynchronously and in parallel, wherein the installation comprises transferring multiple portions of data to each of the plurality of computing devices, and wherein some of the multiple portions are transferred to the plurality of computing devices in parallel and other of the multiple portions are transferred to the plurality of computing devices asynchronously, and wherein the portions that are transferred to the plurality of computing devices asynchronously include one or more programs to be executed on the plurality of computing devices to configure the plurality of computing devices as recited in claim 14.

With respect to claims 15, 16, and 19-22, given that claims 15, 16, and 19-22 depend from claim 14, Appellant respectfully submits that claims 15, 16, and 19-22 are likewise allowable over Babbitt for at least the reasons discussed above with respect to claim 14.

4. Claims 27-30 and 33-36

With respect to claim 27, claim 27 recites:

> A method comprising:
>
> identifying, for each of a plurality of devices, a process to be followed to install an operating system on the device; and
>
> controlling, in parallel and asynchronously, installation of the operating systems on the plurality of devices, wherein the installation comprises transferring multiple portions of data to each of the plurality of devices, and wherein some of the multiple portions are transferred to the plurality of devices in parallel and other of the multiple portions are transferred to the plurality of devices asynchronously, and wherein the portions that are transferred to the plurality of computing devices asynchronously include one or more programs to be executed on the plurality of computing devices to configure the plurality of computing devices.

Appellant respectfully submits that the pre-boot process of Babbitt does not disclose the method of claim 27.

Similar to the discussion above regarding claim 1, Appellant respectfully submits that nowhere in the cited portions of Babbitt, or elsewhere in Babbitt, is there any discussion or mention that the portions of data that are transferred to the plurality of computing devices asynchronously include one or more programs to be executed on the plurality of computing devices to configure the plurality of computing devices as recited in claim 27. The cited portions of Babbitt discuss that the client receives an IP address that gives the client a location on the intranet and tells others on the intranet where to find the client (see, p. 1, paragraph 6). The cited portions of Babbitt also discuss that the client receives a multicast address where the client listens for boot information (see, p. 1, paragraph 7). A multicast address is a specialized form of an IP address (see, p. 1, paragraph 8). An IP address is simply that – an address. An IP address is not itself one or more programs to be executed on the plurality of computing devices to configure the plurality of computing devices.

In addition, in the cited portion of Babbitt the only thing that is sent to the clients asynchronously is the IP addresses. There are no other messages discussed in the cited portion of Babbitt that are sent to the clients asynchronously, much less any messages that include one or more programs to be executed on the plurality of computing devices to configure the plurality of computing devices as recited in claim 27.

Accordingly, Appellant respectfully submits that Babbitt does not disclose controlling, in parallel and asynchronously, installation of the operating systems on the plurality of devices, wherein the installation comprises transferring multiple portions of data to each of the plurality of devices, and wherein some of the multiple portions are transferred to the plurality of devices in parallel and other of the multiple portions are transferred to the plurality of devices asynchronously, and wherein the portions that are transferred to the plurality of computing devices asynchronously include one or more programs to be executed on the plurality of computing devices to configure the plurality of computing devices as recited in claim 27.

With respect to claims 28-30 and 33-36, given that claims 28-30 and 33-36 depend from claim 27, Appellant respectfully submits that claims 28-30 and 33-36 are likewise allowable over Babbitt for at least the reasons discussed above with respect to claim 27.

5. Claims 37-38

With respect to claim 37, claim 37 recites:

> A system for deploying an operating system on a plurality of computing devices, the system comprising:
>
> means for performing a first portion of an installation process on each of the plurality of computing devices asynchronously across the plurality of computing devices, wherein the means for performing the first portion comprises means for downloading one or more programs to each of the plurality of computing devices to be executed on the plurality of computing devices to configure the plurality of computing devices; and
>
> means for performing a second portion of the installation process on each of the plurality of computing devices concurrently.

Appellant respectfully submits that the pre-boot process of Babbitt does not disclose the system of claim 37.

Similar to the discussion above regarding claim 1, Appellant respectfully submits that nowhere in the cited portions of Babbitt, or elsewhere in Babbitt, is there any discussion or mention of means for performing a first portion of an installation process on each of the plurality of computing devices asynchronously across the plurality of computing devices, wherein the means for performing the first portion comprises means for downloading one or more programs to each of the plurality of computing devices to be executed on the plurality of computing devices to configure the plurality of computing devices as recited in claim 37. The cited portions of Babbitt discuss that the client receives an IP address that gives the client a location on the intranet and tells others on the intranet where to find the client (see, p. 1, paragraph 6). The cited portions of Babbitt also discuss that the client receives a multicast address where the client listens for boot information (see, p. 1, paragraph 7). A multicast address is a specialized form of an IP address (see, p. 1, paragraph 8). An IP address is simply that – an address. An IP address is not itself one or more programs to be executed on the plurality of computing devices to configure the plurality of computing devices.

In addition, in the cited portion of Babbitt the only thing that is sent to the clients asynchronously is the IP addresses. There are no other messages discussed in the cited portion of Babbitt that are sent to the clients asynchronously, much less any downloading of one or more programs to each of the plurality of computing devices to be executed on the plurality of computing devices to configure the plurality of computing devices as recited in claim 37.

Accordingly, Appellant respectfully submits that Babbitt does not disclose means for performing a first portion of an installation process on each of the plurality of computing devices asynchronously across the plurality of computing devices, wherein the means for performing the first portion comprises means for downloading one or more programs to each of the plurality of computing devices to be executed on the plurality of computing devices to configure the plurality of computing devices as recited in claim 37.

With respect to claim 38, given that claim 38 depends from claim 37, Appellant respectfully submits that claim 38 is likewise allowable over Babbitt for at least the reasons discussed above with respect to claim 37.

B. Rejection under 35 U.S.C. §103(a) over U.S. Patent Application Publication No. 2002/0198972 to Babbitt et al. in view of WIPO Publication Number WO 01/16701 to GLAXO Group Limited.

Claims 8 and 23 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Application Publication No. 2002/0198972 to Babbitt et al. (hereinafter "Babbitt") in view of WIPO Publication Number WO 01/16701 to GLAXO Group Limited (hereinafter "Glaxo").

Glaxo is directed to remote installation of operating systems (see, Title). As discussed in the Abstract of Glaxo, and in more detail at page 7, line 12 to page 8, line 2, Glaxo describes a method of installing a computer operating system from a network to a computer and configuring the computer for use on the network or on another network. An installation routine is run which accepts an input of a build location and a delivery location, interrogates an environment database with the build location and the delivery location to obtain one or more build specific variables and one or more delivery specific variables. The installation routine also determines the computer type and installed hardware components, accesses the network using the build specific variables, and copies a master installation script from an operating system installation source stored on the network. Still further, the installation routine modifies the copied installation script in dependence on the build specific variables, delivery specific variables, detected computer type and hardware components to create a dedicated installation script. The computer operating system is subsequently automatically installed using the dedicated installation script. The installation process may also include the step of registering the computer with the network where it is to be used upon so that it is ready for immediate use at the delivery location.

1. Claim 8

Claim 8 depends from claim 1 and Appellant respectfully submits that claim 8 is allowable over Babbitt for at least the reasons discussed above with respect to claim 1. Glaxo is not cited as curing, and does not cure, the deficiencies of Babbitt discussed above with respect to claim 1.

Furthermore, claim 8 recites:

> An apparatus as recited in claim 1, wherein the apparatus further comprises a network boot service to:
>
> receive, from one of the plurality of computing devices, information describing hardware installed on the computing device; and
>
> use the received information to generate a deployment agent to be downloaded to the computing device and used to install the operating system on the computing device.

Appellant respectfully submits that Babbitt in view of Glaxo does not disclose or suggest the receipt and use as recited in claim 8.

In Glaxo a master installation script held with the computer operating system installation source on the network data store is copied onto the disk memory of the computer workstation, and the copy of the installation script is then modified in dependence on the build location specific variables, on the delivery location specific variables and on the computer workstation variables to create a dedicated installation script (see, page 7, lines 26-31). Thus, in Glaxo the master installation script is modified **after** it is copied to the computer workstation. In claim 8, however, **the received information is used to generate the deployment agent to be downloaded to the computing device**, so the received information is used to generate the deployment agent **prior to** downloading of the deployment agent to the computing device. Appellant respectfully submits that there is no discussion or mention in Glaxo of modifying the installation script of Glaxo prior to copying the installation script to the workstation of Glaxo.

In the June 16, 2005 Office Action at ¶ 10, pp. 18-19, it was asserted that:

> Second, as made clear by Babbitt the plurality of computing devices use firmware to start the booting process (page 1, paragraph 5). Additional installation software arrives from other sources. Glaxo describes additional installation software. In the properly motivated combination of Babbitt and Glaxo, the installation software provided by Glaxo comes from a remote source as suggested by Babbitt.

Even if Babbitt and Glaxo were combined, there is no discussion or mention in the combination of the master installation script of Glaxo being modified before it is copied to the computer workstation. In Babbitt, the boot information contains the desired operating system files to be multicast (see, p. 1, paragraph 5). But when multicasting, multiple clients listen on a multicast address and obtain the data simultaneously when a file server process transmits the data (see, p. 1, paragraph 8). Thus, when multicasting the same boot information is transmitted to all of the clients because they are all listening on the same multicast address. As such, there could not be any client-specific modification of this boot information as discussed in Glaxo prior to multicasting the boot information because the boot information would no longer be the same for all of the multiple clients and thus could not be multicast to the clients.

Thus, Appellant respectfully submit that there is no disclosure or suggestion in Babbitt, Glaxo, or the combination of Babbitt and Glaxo of the use of received information to generate a deployment agent to be downloaded to the computing device and used to install the operating system on the computing device as recited in claim 8.

In the November 1, 2005 Advisory Action at p. 2, it was asserted that:

> In regard to claim 8 (and similar claims), the claim language does not make clear when receiving and generating occur, thus generating a entity on the client would be read upon.

Appellant respectfully disagrees. In claim 8, the information received from one of the plurality of computing devices is used to generate a deployment agent to be downloaded to the computing device. As the deployment agent is generated to be downloaded to the computing device, Appellant respectfully submits that it is clear that the deployment agent is generated prior to downloading of the deployment agent to the computing device.

Accordingly, for at least these reasons, Appellant respectfully submits that claim 8 is allowable over Babbitt in view of Glaxo.

2. Claim 23

With respect to claim 23, claim 23 depends from claim 14 and Appellant respectfully submits that claim 23 is allowable over Babbitt for at least the reasons discussed above with respect to claim 14. Glaxo is not cited as curing, and does not cure, the deficiencies of Babbitt discussed above with respect to claim 14.

Furthermore, claim 23 recites:

> One or more computer readable media as recited in claim 14, wherein the plurality of instructions further cause the one or more processors to:
>
> receive, from one of the plurality of computing devices, information describing hardware installed on the computing device; and
>
> use the received information to generate a deployment agent to be downloaded to the computing device and used to install the operating system on the computing device.

Appellant respectfully submits that Babbitt in view of Glaxo does not disclose or suggest the receipt and use as recited in claim 23.

As discussed above with respect to claim 8, in Glaxo a master installation script held with the computer operating system installation source on the network data store is copied onto the disk memory of the computer workstation, and the copy of the installation script is then modified in dependence on the build location specific variables, on the delivery location specific variables and on the computer workstation variables to create a dedicated installation script (see, page 7, lines 26-31). Thus, in Glaxo the master installation script is modified **after** it is copied to the computer workstation. In claim 23, however, **the received information is used to generate the deployment agent to be downloaded to the computing device**, so the received information is used to generate the deployment agent **prior to** downloading of the deployment agent to the computing device. Appellant respectfully submits that there is no discussion or mention in Glaxo of modifying the installation script of Glaxo prior to copying the installation script to the workstation of Glaxo.

Even if Babbitt and Glaxo were combined, there is no discussion or mention in the combination of the master installation script of Glaxo being modified before it is copied to the computer workstation. In Babbitt, the boot information contains the desired operating system files to be multicast (see, p. 1, paragraph 5). But when multicasting, multiple clients listen on a multicast address and obtain the data simultaneously when a file server process transmits the data (see, p. 1, paragraph 8). Thus, when multicasting the same boot information is transmitted to all of the clients because they are all listening on the same multicast address. As such, there could not be any client-specific modification of this boot information as discussed in Glaxo prior to multicasting the boot information because the boot information would no longer be the same for all of the multiple clients and thus could not be multicast to the clients.

Accordingly, for at least these reasons, Appellant respectfully submits that claim 23 is allowable over Babbitt in view of Glaxo.

C. Rejection under 35 U.S.C. §103(a) over U.S. Patent Application Publication No. 2002/0198972 to Babbitt et al. in view of U.S. Patent No. 6,687,902 to Curtis et al.

Claims 9, 13, and 26 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Application Publication No. 2002/0198972 to Babbitt et al. (hereinafter "Babbitt") in view of U.S. Patent No. 6,687,902 to Curtis et al. (hereinafter "Curtis").

Curtis is directed to a method, system and program for uninstalling user selected file sets of a program (see, col. 2, lines 10-11). As discussed in the Abstract of Curtis, a program is defined by a plurality of file sets. Each file set defines a set of functions performed by the program. A flag is provided with each file set of the program indicating one of a first and second value. The flag values indicate those files which are enabled and unenabled to be deleted. A determination is made as to the file sets having the first flag value. A graphical user interface (GUI) then displays at least one user selectable option to uninstall at least one determined file set or file having the first flag value. User input is then received indicating file sets or files to delete or uninstall and the file sets the user input indicated to uninstall are uninstalled.

1. Claim 9

Claim 9 depends from claim 1 and Appellant respectfully submits that claim 9 is allowable over Babbitt for at least the reasons discussed above with respect to claim 1. Curtis is not cited as curing, and does not cure, the deficiencies of Babbitt discussed above with respect to claim 1. For at least these reasons, Appellant respectfully submits that claim 9 is allowable over Babbitt in view of Curtis.

2. Claim 13

Claim 13 depends from claim 10 and Appellant respectfully submits that claim 13 is allowable over Babbitt for at least the reasons discussed above with respect to claim 10. Curtis is not cited as curing, and does not cure, the deficiencies of Babbitt discussed above with respect to claim 10. For at least these reasons, Appellant respectfully submits that claim 13 is allowable over Babbitt in view of Curtis.

3. Claim 26

Claim 26 depends from claim 14 and Appellant respectfully submits that claim 26 is allowable over Babbitt for at least the reasons discussed above with respect to claim 14. Curtis is not cited as curing, and does not cure, the deficiencies of Babbitt discussed above with respect to claim 14. For at least these reasons, Appellant respectfully submits that claim 26 is allowable over Babbitt in view of Curtis.

D. Rejection under 35 U.S.C. §103(a) over U.S. Patent Application Publication No. 2002/0198972 to Babbitt et al. in view of WIPO Publication Number WO 01/16701 to GLAXO Group Limited and further in view of U.S. Patent No. 6,236,983 to Hofmann et al.

Claims 12, 24, and 25 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Application Publication No. 2002/0198972 to Babbitt et al. (hereinafter "Babbitt") in view of WIPO Publication Number WO 01/16701 to GLAXO Group Limited (hereinafter "Glaxo") and further in view of U.S. Patent No. 6,236,983 to Hofmann et al. (hereinafter "Hofmann").

Hofmann is directed to a system for collecting information regarding a device or a user of a device (see, col. 1, lines 7-9). As discussed in the Abstract of Hofmann, information is received from a discovery agent, which collects information when activated. The system determines a discovery rule to be applied to the information received from the discovery agent. The discovery rule is then applied to the information received from the discovery agent. The discovery agent and the discovery rule are separate code sequences or separate programs. A discovery engine receives the collected information from the discovery agent and applies the discovery rule to the collected information. The system may periodically activate the discovery agent to collect information. A typical system receives information from multiple discovery agents and applies multiple discovery rules to the received information. Each discovery agent includes a unique associated identifier. Additionally, the information collected by each discovery agent has an associated tag that identifies the data.

1. Claim 12

Claim 12 depends from claim 10 and Appellant respectfully submits that claim 12 is allowable over Babbitt for at least the reasons discussed above with respect to claim 10. Glaxo and Hofmann are not cited as curing, and do not cure, the deficiencies of Babbitt discussed above with respect to claim 10.

Furthermore, claim 12 recites:

> A method as recited in claim 10, wherein performing the first portion further comprises:
>
> downloading a deployment agent loader to obtain, from each of the plurality of computing devices, information describing hardware installed on each of the plurality of computing devices; and
>
> downloading, to each of the plurality of computing devices, a deployment agent, wherein the deployment agent downloaded to a particular computing device is generated based on the received information regarding the particular computing device.

Appellant respectfully submits that Babbitt in view of Glaxo and Hofmann does not disclose or suggest the downloading a deployment agent loader and a deployment agent as recited in claim 12.

Appellant respectfully submits that, similar to the discussion above regarding claim 8, Babbitt in view of Glaxo does not disclose or suggest downloading, to each of the plurality of computing devices, a deployment agent, wherein the deployment agent downloaded to a particular computing device is generated based on the received information regarding the particular computing device as recited in claim 12. As discussed above with respect to claim 8, in Glaxo a master installation script held with the computer operating system installation source on the network data store is copied onto the disk memory of the computer workstation, and the copy of the installation script is then modified in dependence on the build location specific variables, on the delivery location specific variables and on the computer workstation variables to create a dedicated installation script (see, page 7, lines 26-31). Thus, in Glaxo the master installation script is modified **after** it is copied to the computer workstation. In claim 12, however, **the deployment agent downloaded to a particular computing device is generated based on the received information regarding the particular computing device**, so the received information is used to generate the deployment agent **prior to** downloading of the deployment agent to the computing device. Appellant respectfully submits that there is no discussion or mention in Glaxo of modifying the installation script of Glaxo prior to copying the installation script to the workstation of Glaxo. Babbitt and Hofmann are not cited as curing, and do not cure, these deficiencies of Glaxo.

Furthermore, Appellant respectfully submits that there is no disclosure or suggestion in Babbitt, Glaxo, or Hofmann, or the combination thereof, of downloading a deployment agent loader and downloading a deployment agent asynchronously (as part of the first portion) as recited in claim 12. Babbitt is cited in the June 16, 2005 Office Action as disclosing performing installation across a plurality of computing devices both concurrently and asynchronously. However, Babbitt describes the client making a request to a boot negotiation server process for a multicast address (see, page 1, paragraph 7), and then going to the multicast address and listening for the boot information (see, page 1, paragraph 10). Thus, obtaining this multicast address is the only part of Babbitt that could be considered as being performed asynchronously. This multicast address, however, is simply an IP address. There is no discussion or mention in Babbitt that any program is downloaded asynchronously, much less that a deployment agent loader and deployment agent are downloaded asynchronously.

Glaxo and Hofmann are not cited as disclosing or suggesting, and do not disclose or suggest, performing such downloading as part of an asynchronous (first) portion of an installation process rather than a concurrent (second) portion of the installation process. Accordingly, as none of Babbitt, Glaxo, and Hofmann disclose downloading a deployment agent loader and downloading a deployment agent asynchronously, Appellant respectfully submits that Babbitt in view of Glaxo and further in view of Hofmann cannot disclose or suggest downloading a deployment agent loader and downloading a deployment agent asynchronously as recited in claim 12.

For at least these reasons, Appellant respectfully submits that claim 12 is allowable over Babbitt in view of Glaxo and further in view of Hofmann.

2. Claims 24-25

Claim 24 recites:

> One or more computer readable media as recited in claim 14, wherein the set of steps includes steps of:
>
> downloading a deployment agent loader to one of the plurality of computing devices;
>
> receiving, from the deployment agent loader, information describing hardware installed on the one computing device;
>
> dynamically generating a deployment agent for the one computing device based at least in part on the hardware installed on the one computing device; and
>
> downloading the dynamically generated deployment agent to the one computing device.

Appellant respectfully submits that Babbitt in view of Glaxo and Hofmann does not disclose or suggest dynamically generating a deployment agent for the one computing device based at least in part on the hardware installed on the one computing device, and downloading the dynamically generated deployment agent to the one computing device as recited in claim 24.

With respect to claim 24, Appellant respectfully submits that, similar to the discussion above regarding claim 8, Babbitt in view of Glaxo does not disclose or suggest dynamically generating a deployment agent for the one computing device based at least in part on the hardware installed on the one computing device, and downloading the dynamically generated deployment agent to the one computing device as recited in claim 24. As discussed above with respect to claim 8, in Glaxo a master installation script held with the computer operating system installation source on the network data store is copied onto the disk memory of the computer workstation, and the copy of the installation script is then modified in dependence on the build location specific variables, on the delivery location specific variables and on the computer workstation variables to create a dedicated installation script (see, page 7, lines 26-31). Thus, in Glaxo the master installation script is modified **after** it is copied to the computer workstation. In claim 24, however, **the deployment agent is dynamically generated, and the dynamically generated deployment agent is downloaded to the one computing device**, so the deployment agent is dynamically generated **prior to** downloading of the dynamically generated deployment agent to the computing device. Appellant respectfully submits that there is no discussion or mention in Glaxo of modifying the installation script of Glaxo prior to copying the installation script to the workstation of Glaxo. Babbitt and Hofmann are not cited as curing, and do not cure, these deficiencies of Glaxo. For at least these reasons, Appellant respectfully submits that claim 24 is allowable over Babbitt in view of Glaxo and further in view of Hofmann.

Given that claim 25 depends from claim 24, Appellant respectfully submits that claim 25 is likewise allowable over Babbitt in view of Glaxo and further in view of Hofmann for at least the reasons discussed above with respect to claim 24.

E. Rejection under 35 U.S.C. §103(a) over U.S. Patent Application Publication No. 2002/0198972 to Babbitt et al. in view of U.S. Patent No. 6,763,456 to Agnihotri et al.

Claims 17 and 31 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Application Publication No. 2002/0198972 to Babbitt et al. (hereinafter "Babbitt") in view of U.S. Patent No. 6,763,456 to Agnihotri et al. (hereinafter "Agnihotri").

Agnihotri is directed to a self correcting server with automatic error handling (see, Title). As discussed in the Abstract of Agnihotri, Agnihotri discusses a reliable and automated boot process for computer systems of limited access. Both the power-on routine and the operating system report error conditions to common storage during execution, are repeatedly re-executed in an effort to automatically boot successfully, and may diagnose system problems as desired. When failures persist, the computer system may be assisted remotely.

1. Claim 17

Claim 17 depends from claim 14 and Appellant respectfully submits that claim 17 is allowable over Babbitt for at least the reasons discussed above with respect to claim 14. Agnihotri is not cited as curing, and does not cure, the deficiencies of Babbitt discussed above with respect to claim 14. For at least these reasons, Appellant respectfully submits that claim 17 is allowable over Babbitt in view of Agnihotri.

2. Claim 31

Claim 31 depends from claim 27 and Appellant respectfully submits that claim 31 is allowable over Babbitt for at least the reasons discussed above with respect to claim 27. Agnihotri is not cited as curing, and does not cure, the deficiencies of Babbitt discussed above with respect to claim 27. For at least these reasons, Appellant respectfully submits that claim 31 is allowable over Babbitt in view of Agnihotri.

F. Rejection under 35 U.S.C. §103(a) over U.S. Patent Application Publication No. 2002/0198972 to Babbitt et al. in view of U.S. Patent Application Publication No. 2002/0161868 to Paul

Claims 39 and 40 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Application Publication No. 2002/0198972 to Babbitt et al. (hereinafter "Babbitt") in view of U.S. Patent Application Publication No. 2002/0161868 to Paul (hereinafter "Paul").

Paul is directed to a method and system for fault-tolerant remote boot in the presence of boot server overload/failure with self-throttling boot servers (see, Title). As discussed in the Abstract of Paul, a method and system are presented for facilitating a PXE-compliant (Preboot Execution Environment) remote boot process between clients and multiple available servers on a network. Each server device can respond to a PXE-extended DHCP (Dynamic Host Configuration Protocol) Request message from any client device on the network. Each client can receive responses from the alternate servers, select a server from one of those responses, and be directed by that response to complete the remote boot process from the same server. Each server also employs a self-throttling process to prevent the server from responding to new PXE-extended DHCP request messages from additional clients while the server has insufficient resources to remote boot additional clients with the required quality of service. This automatically redirects those additional clients to other servers that can provide the required quality of service without affecting the remote boot of clients already being serviced by the server.

1. Claim 39

Claim 39 depends from claim 1 and Appellant respectfully submits that claim 39 is allowable over Babbitt for at least the reasons discussed above with respect to claim 1. Paul is not cited as curing, and does not cure, the deficiencies of Babbitt discussed above with respect to claim 1.

Furthermore, claim 39 recites:

> An apparatus as recited in claim 1, wherein the one or more programs are executed on the plurality of computing devices to set one or more BIOS parameters on the plurality of computing devices.

Appellant respectfully submits that Babbitt in view of Paul does not disclose or suggest wherein the one or more programs are executed on the plurality of computing devices to set one or more BIOS parameters on the plurality of computing devices as recited in claim 39.

Appellant respectfully submits that there is no disclosure or suggestion in Babbitt in view of Paul that one or more programs are executed on the plurality of computing devices to set one or more BIOS parameters on the plurality of computing devices as recited in claim 39. Babbitt is cited in the June 16, 2005 Office Action as disclosing performing installation across a plurality of computing devices both concurrently and asynchronously. However, as discussed above, Babbitt describes the client making a request to a boot negotiation server process for a multicast address (see, page 1, paragraph 7), and then going to the multicast address and listening for the boot information (see, page 1, paragraph 10). Thus, obtaining this multicast address is the only part of Babbitt that could be considered as being performed asynchronously. This multicast address, however, is simply an IP address. There is no discussion or mention in Babbitt that any program is downloaded asynchronously, much less of a program to set one or more BIOS parameters being downloaded asynchronously. The disclosure of a BIOS in Paul, or of obtaining an IP address as discussed at p. 3, paragraph 33 of Paul, does not cure this deficiency of Babbitt because there is no disclosure or suggestion that one or more programs to set one or more BIOS parameters would be communicated to the clients of Babbitt as an IP address.

In the November 1, 2005 Advisory Action at p. 2, it was asserted that Paul disclosed "BIOS as indicated and RAID being a hardware element would fall into the realm of adjusted hardware parameters". However, Appellant respectfully submits that the mere disclosure of a BIOS in Paul does not disclose or suggest one or more programs are executed on the plurality of computing devices to set one or more BIOS parameters on the plurality of computing devices, much less such one or more programs being downloaded asynchronously as recited in claim 39. Thus, Appellant respectfully submits that Babbitt in view of Paul cannot disclose or suggest the apparatus of claim 39.

Accordingly, for at least these reasons, Appellant respectfully submits that claim 39 is allowable over Babbitt in view of Paul.

2. Claim 40

Claim 40 depends from claim 1 and Appellant respectfully submits that claim 40 is allowable over Babbitt for at least the reasons discussed above with respect to claim 1. Paul is not cited as curing, and does not cure, the deficiencies of Babbitt discussed above with respect to claim 1.

Furthermore, claim 40 recites:

> An apparatus as recited in claim 1, wherein the one or more programs are executed on the plurality of computing devices to set one or more RAID parameters on the plurality of computing devices.

Appellant respectfully submits that Babbitt in view of Paul does not disclose or suggest wherein the one or more programs are executed on the plurality of computing devices to set one or more RAID parameters on the plurality of computing devices as recited in claim 40.

Appellant respectfully submits that there is no disclosure or suggestion in Babbitt in view of Paul that one or more programs are executed on the plurality of computing devices to set one or more RAID parameters on the plurality of computing devices as recited in claim 40. Babbitt is cited in the June 16, 2005 Office Action as disclosing performing installation across a plurality of computing devices both concurrently and asynchronously. However, as discussed above, Babbitt describes the client making a request to a boot negotiation server process for a multicast address (see, page 1, paragraph 7), and then going to the multicast address and listening for the boot information (see, page 1, paragraph 10). Thus, obtaining this multicast address is the only part of Babbitt that could be considered as being performed asynchronously. This multicast address, however, is simply an IP address. There is no discussion or mention in Babbitt that any program is downloaded asynchronously, much less of a program to set one or more RAID parameters being downloaded asynchronously. The disclosure of a BIOS in Paul, or of obtaining an IP address as discussed at p. 3, paragraph 33 of Paul, does not cure this deficiency of Babbitt because there is no disclosure or suggestion that one or more programs to set one or more RAID parameters would be communicated to the clients of Babbitt as an IP address.

In the November 1, 2005 Advisory Action at p. 2, it was asserted that Paul disclosed "BIOS as indicated and RAID being a hardware element would fall into the realm of adjusted hardware parameters". However, Appellant respectfully submits that the mere disclosure of a BIOS in Paul, or that a RAID is a hardware element, does not disclose or suggest one or more programs are executed on the plurality of computing devices to set one or more RAID parameters on the plurality of computing devices, much less such one or more programs being downloaded asynchronously as recited in claim 40. Thus, Appellant respectfully submits that Babbitt in view of Paul cannot disclose or suggest the apparatus of claim 40.

Accordingly, for at least these reasons, Appellant respectfully submits that claim 40 is allowable over Babbitt in view of Paul.

Conclusion

The Office's basis and supporting rationale for the § 103(a) rejections is not supported by the teaching of the cited references. Appellant respectfully requests that the rejections be overturned and that pending claims 1, 3-17, 19-31, 33-40 be allowed to issue.

Respectfully Submitted,

Dated: 5/15/06

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(8) Appendix of Appealed Claims

1. An apparatus configured to manage installation of operating systems on a plurality of computing devices, wherein the installation is performed across the plurality of computing devices both concurrently and asynchronously, wherein the installation comprises transferring multiple portions of data to each of the plurality of computing devices, and wherein some of the multiple portions are transferred to the plurality of computing devices concurrently and other of the multiple portions are transferred to the plurality of computing devices asynchronously, and wherein the portions that are transferred to the plurality of computing devices asynchronously include one or more programs to be executed on the plurality of computing devices to configure the plurality of computing devices.

3. An apparatus as recited in claim 1, wherein the portions that are transferred to the plurality of computing devices concurrently are larger than the portions transferred to the plurality of computing devices asynchronously.

4. An apparatus as recited in claim 1, wherein the portions that are transferred to the plurality of computing devices concurrently comprise an image of the operating system being deployed, and wherein the image of the operating system is transferred to the plurality of computing devices after the one or more programs are executed on the plurality of computing devices.

5. An apparatus as recited in claim 1, wherein installation of the operating systems is performed in multiple steps, and wherein the apparatus is configured to perform a first set of the multiple steps asynchronously across the plurality of computing devices, and, after a particular one of the multiple steps is completed, to perform one or more of the remaining steps of the multiple steps concurrently across the plurality of computing devices.

6. An apparatus as recited in claim 5, wherein the one or more remaining steps includes a step of downloading an operating system image to the plurality of computing devices.

7. An apparatus as recited in claim 1, wherein the apparatus further comprises:

a controller to maintain a record of the plurality of computing devices being managed by the apparatus;

a network boot service to control how the plurality of computing devices are to boot; and

an image distribution service to store one or more operating system images that can be installed as the operating system for one or more of the plurality of computing devices.

8. An apparatus as recited in claim 1, wherein the apparatus further comprises a network boot service to:

receive, from one of the plurality of computing devices, information describing hardware installed on the computing device; and

use the received information to generate a deployment agent to be downloaded to the computing device and used to install the operating system on the computing device.

9. An apparatus as recited in claim 1, wherein the installation comprises maintaining a record of what operations are performed when installing the operating systems on the plurality of computing devices.

10. A method of deploying an operating system on a plurality of computing devices, the method comprising:

performing a first portion of an installation process on each of the plurality of computing devices asynchronously across the plurality of computing devices, wherein performing the first portion comprises downloading one or more programs to each of the plurality of computing devices to be executed on the plurality of computing devices to configure the plurality of computing devices; and

performing a second portion of the installation process on each of the plurality of computing devices concurrently.

11. A method as recited in claim 10, wherein performing the second portion comprises downloading an operating system image to the plurality of computing devices.

12. A method as recited in claim 10, wherein performing the first portion further comprises:

downloading a deployment agent loader to obtain, from each of the plurality of computing devices, information describing hardware installed on each of the plurality of computing devices; and

downloading, to each of the plurality of computing devices, a deployment agent, wherein the deployment agent downloaded to a particular computing device is generated based on the received information regarding the particular computing device.

13. A method as recited in claim 10, further comprising adding an indication of the installation process performed on each of the plurality of computing devices to a log.

14. One or more computer readable media having stored thereon a plurality of instructions that, when executed by one or more processors, causes the one or more processors to:

receive, from each of a plurality of computing devices, an indication that the computing device is to have an operating system installed on the computing device;

for each of the plurality of computing devices, identify, in response to receiving the indication, a set of steps to be taken in order to install an operating system on the computing device; and control installation of the operating systems on the plurality of computing devices asynchronously and in parallel, wherein the installation comprises transferring multiple portions of data to each of the plurality of computing devices, and wherein some of the multiple portions are transferred to the plurality of computing devices in parallel and other of the multiple portions are transferred to the plurality of computing devices asynchronously, and wherein the portions that are transferred to the plurality of computing devices asynchronously include one or more programs to be executed on the plurality of computing devices to configure the plurality of computing devices.

15. One or more computer readable media as recited in claim 14, wherein the indication that the computing device is to have an operating system installed is an indication that the computing device has been powered-on.

16. One or more computer readable media as recited in claim 14, wherein one or more of the plurality of computing devices currently has no operating system installed.

17. One or more computer readable media as recited in claim 14, wherein one or more of the plurality of computing devices currently has an operating system installed.

19. One or more computer readable media as recited in claim 14, wherein the portions that are transferred to the plurality of computing devices in

parallel are larger than the portions transferred to the plurality of computing devices asynchronously.

20. One or more computer readable media as recited in claim 14, wherein the portions that are transferred to the plurality of computing devices in parallel comprise an image of the operating system being deployed.

21. One or more computer readable media as recited in claim 14, wherein the instructions cause the one or more processors to perform multiple steps of the set of steps asynchronously across the plurality of computing devices, and, after a particular one of the set of steps is completed, to perform one or more of the remaining steps of the set of steps in parallel across the plurality of computing devices.

22. One or more computer readable media as recited in claim 21, wherein the one or more remaining steps includes a step of downloading an operating system image to the plurality of computing devices.

23. One or more computer readable media as recited in claim 14, wherein the plurality of instructions further cause the one or more processors to:

receive, from one of the plurality of computing devices, information describing hardware installed on the computing device; and use the received information to generate a deployment agent to be downloaded to the computing device and used to install the operating system on the computing device.

24. One or more computer readable media as recited in claim 14, wherein the set of steps includes steps of:

downloading a deployment agent loader to one of the plurality of computing devices;

receiving, from the deployment agent loader, information describing hardware installed on the one computing device;

dynamically generating a deployment agent for the one computing device based at least in part on the hardware installed on the one computing device; and

downloading the dynamically generated deployment agent to the one computing device.

25. One or more computer readable media as recited in claim 24, wherein the set of steps further includes:

downloading, in response to a request received from the deployment agent on the one computing device, an image of an operating system to the one computing device.

26. One or more computer readable media as recited in claim 14, wherein the plurality of instructions further cause the one or more processors to

log, for each of the plurality of computing devices, the set of steps taken in order to install the operating system on the computing device.

27. A method comprising:

identifying, for each of a plurality of devices, a process to be followed to install an operating system on the device; and

controlling, in parallel and asynchronously, installation of the operating systems on the plurality of devices, wherein the installation comprises transferring multiple portions of data to each of the plurality of devices, and wherein some of the multiple portions are transferred to the plurality of devices in parallel and other of the multiple portions are transferred to the plurality of devices asynchronously, and wherein the portions that are transferred to the plurality of computing devices asynchronously include one or more programs to be executed on the plurality of computing devices to configure the plurality of computing devices.

28. A method as recited in claim 27, wherein the same operating system is to be installed on each of the plurality of devices.

29. A method as recited in claim 27, wherein a different operating system is to be installed on at least a subset of the plurality of devices.

30. A method as recited in claim 27, wherein one or more of the plurality of devices currently has no operating system installed.

31. A method as recited in claim 27, wherein one or more of the plurality of devices currently has an operating system installed.

33. A method as recited in claim 27, wherein the portions that are transferred to the plurality of devices in parallel are larger than the portions transferred to the plurality of devices asynchronously.

34. A method as recited in claim 27, wherein the portions that are transferred to the plurality of devices in parallel comprise an image of the operating system being deployed.

35. A method as recited in claim 27, wherein the installation comprises performing a set of steps, and performing multiple steps of the set of steps asynchronously across the plurality of devices, and, after a particular one of the set of steps is completed, performing one or more of the remaining steps of the set of steps in parallel across the plurality of devices.

36. A method as recited in claim 35, wherein the one or more remaining steps includes a step of downloading an operating system image to the plurality of devices.

37. A system for deploying an operating system on a plurality of computing devices, the system comprising:

means for performing a first portion of an installation process on each of the plurality of computing devices asynchronously across the plurality of computing devices, wherein the means for performing the first portion comprises means for downloading one or more programs to each of the plurality of computing devices to be executed on the plurality of computing devices to configure the plurality of computing devices; and

means for performing a second portion of the installation process on each of the plurality of computing devices concurrently.

38. A system as recited in claim 37, wherein the means for performing the second portion comprises means for downloading an operating system image to the plurality of computing devices.

39. An apparatus as recited in claim 1, wherein the one or more programs are executed on the plurality of computing devices to set one or more BIOS parameters on the plurality of computing devices.

40. An apparatus as recited in claim 1, wherein the one or more programs are executed on the plurality of computing devices to set one or more RAID parameters on the plurality of computing devices.

(9) Appendix of Evidence Submitted

None.

(10) Appendix of Related Proceedings

None.